that the plant was *Clematis orientalis* L.; from Kew the further information was sent that it was a variety of the species, exactly agreeing with specimens from the N. W. Himalayas.

As the plant is apparently with us to stay, it may be worth while to give the description of it, based on Las Vegas material.

Clematis orientalis, variety—Low straggling climber; stems slender, purplish at the nodes; leaves, including petioles, 7 to 12 cm. long, with five leaflets, which are rather thick, perfectly glabrous, a somewhat glaucous green, more or less lanceolate in outline, the terminal one often linear-lanceolate, the lateral ones sometimes ovate-lanceolate, all more or less coarsely and irregularly serrate towards the base, or even lobed, the upper leaves especially having narrow leaflets, distinctly lobed at the base, the lobes pointed and often notched; in a well developed leaf the terminal lobe is about 4 cm. long. Buds pale greenish-yellow, obpyriform, nodding, 4-angled; flowers at first nodding, ultimately erect; sepals four, pale sulphur-yellow with a greenish tint, rather thick, recurved at tips, 7-nerved, nearly glabrous, perfectly so below except edges, but above with scanty white woolly hairs, and the lateral margins, which are bent inwards, quite conspicuously white-woolly towards the tip; apex of sepal truncate in lateral view, with a linear green process, 2 mm. long, at the lower corner of the truncation. Length of sepal about 23 mm., breadth 10 mm. Stamens 32, anthers 4½ mm. long, filaments about 6 mm., broad and flattened, especially the inner ones, glabrous with only a few hairs on the margins. Outer filaments tinged with purplish. No staminodes. Fruit a globular head with the usual long plumose tails, about 4 cm. long, the carpels also hairy, borne upon a honeycombed hairy receptacle. The persistent styles in the fruit are reddish, and the other long hairs silvery-white.

The naturalization of a Himalayan *Clematis* in the mountains of New Mexico suggests the possibility that other plants from the same region might do well if introduced here, some of them being perhaps of economic value.

T. D. A. COCKERELL.

MESILLA PARK, NEW MEXICO,
November 25, 1899.

NOTES ON INORGANIC CHEMISTRY.

THE problem of the structure of the carbon molecule has attracted the attention of not a few chemists, though little progress has been made toward its solution, owing to the difficulty of obtaining soluble bodies of definite composition by the action of reagents upon any form of carbon. Sometime since, L. Staudenmaier discovered a rapid method of oxidizing graphite to graphitic acid, and a continuation of this work is described in the current *Berichte*. Graphitic acid appears not to be a true acid, but a substance of a quinone nature. By heating it is converted into a simpler compound which the author calls pyrographitic acid, from which other derivatives may be formed. Among the oxidation products is mellitic acid $C_6(COOH)_6$. From the analogy furnished by the oxidation of naphthalene to phthalic acid, it would appear that graphitic acid and hence graphite contains three naphthalene groups united together into a benzene nucleus.

In the study of non-aqueous solutions more work has been done on ammonia as a solvent than on any other liquid. The work of E. C. Franklin and others shows that many salts dissolve readily in liquid anhydrous ammonia and are electrolytically dissociated. According to Franklin, liquid hydrogen sulfid appears not to act in this manner as a solvent, and I know of no experiments with liquid hydrochloric acid. Great interest attaches to a series of experiments described by P. Walden, of Riga, in the *Berichte*, on liquid sulfur dioxid as an inorganic ionizing solvent. It is the more remarkable, as the solvent contains no hydrogen. As far as Walden's experiments have yet gone, the halid salts have been found to dissolve readily in liquid sulfur dioxid and metathetical reactions take place in the solution. Organic substances of very different compositions dissolve readily, and often though solvent and solute are colorless, the solution is colored. A number of substances were used for determination of molecular weight by the boiling point method. The solutions appear to be quite different from the aqueous solutions, showing the molecular weight in several instances double what would be expected. The article is an interesting contribution to the chemistry of solutions.

The last number of the *American Chemical Journal* contains a paper by Dr. G. P. Baxter, of Harvard University, on the occlusion of hydrogen by cobalt and other metals. Statements in literature regarding this subject vary very much, but Dr. Baxter claims that this is due chiefly at least to the different degrees of purity of the metal. Ingot cobalt, or very pure cobalt, when very finely divided, has the power of occluding hydrogen to a very slight extent. Most of those cases where there is a large amount of hydrogen absorbed are, at least, in part due to the presence of impurities in the cobalt used. Nickel, silver and copper act similarly to cobalt in occluding but small quantities of hydrogen. Indeed, it is questioned whether silver actually occludes any hydrogen.

Japanese farms are, to a large extent, exhausted of phosphoric acid, so that the discovery of phosphate beds in that country is very welcome. This discovery is described by K. Tsuneto in the *Chemiker Zeitung*. The phosphate beds which are on island Kinshu are largely lime and sand running only up to 20% phosphate; but this can be very successfully used in lieu of better material and will prove of great service to Japan. The remainder of the material of the phosphate beds seems to be a sand cemented together by limestone. Some fossil remains are present. J. L. H.

CURRENT NOTES ON METEOROLOGY.

LECTURES ON METEOROLOGY.

In the Public Educational Course, now being given in Baltimore, under the auspices of the Johns Hopkins University, a series of fifteen class lectures, by Dr. Oliver L. Fassig, Instructor in Climatology in the University, is announced. These lectures are to come on Saturday morning, beginning about the middle of December, and are intended especially for teachers. The fee for the course is $3, and with the additional privilege of class work, consisting of written exercises and final examination, the fee is $5. For regular attendance, satisfactory class or laboratory work, and final examination, a simple certificate will be awarded to successful students. The attendance at this educational course this year is to be about eighty-five. The subjects of Dr. Fassig's lectures are as follows: I., II. The Temperature of the Atmosphere; III., IV. Forms of Water in the Atmosphere; V. The Weight and Extent of the Atmosphere; VI., VII., VIII. The Movements of the Atmosphere; IX. Weather; X. Climate; XI. Do Climates Change? XII., XIII. Fortelling the Weather; XIV. The Work of a National Weather Bureau; XV. Two Centuries of Progress in Meteorology.

PHYSIOLOGICAL EFFECTS OF ANTARCTIC COLD AND NIGHT.

Dr. Frederick A. Cook, Surgeon of the *Belgica* expedition to the Antarctic, writes of some of the incidents of the voyage in *McClure's Magazine* for November. The physiological effects, noted as a result of the darkness and cold of the Antarctic night, are thus described: "The long darkness, the isolation, the tinned foods, the continued low temperature, with increasing storms and a high humidity, finally reduced our systems to what we will call polar anæmia. We became pale, with a kind of greenish hue. * * * The stomach and all the organs were sluggish, and refused to work. Most dangerous of all were the cardiac and cerebral symptoms. The heart acted as if it had lost its regulating influence. Its action was feeble, but its beats were not increased until other dangerous symptoms appeared. Its action was irregular, feeble, and entirely unreliable throughout the night. The mental symptoms were not so noticeable. The men were incapable of concentration and unable to continue prolonged thought. One sailor was forced to the verge of insanity, but he recovered with the returning sun." Similar effects have been noticed in the Arctic, and hence show a well-marked series of physiological changes which take place under the peculiar conditions which surround Arctic and Antarctic explorers during the long polar night.

PHYSIOLOGICAL EFFECTS OF HIGH ALTITUDES.

The September number of the *Zeitschrift für Luftschiffahrt* contains a short paper by Dr. Mertens on the physiological effects of high altitudes; the suggested causes of these various effects, and possible remedies. The article gives a compact summary of this interesting problem. It is to be noted that Dr. Mertens